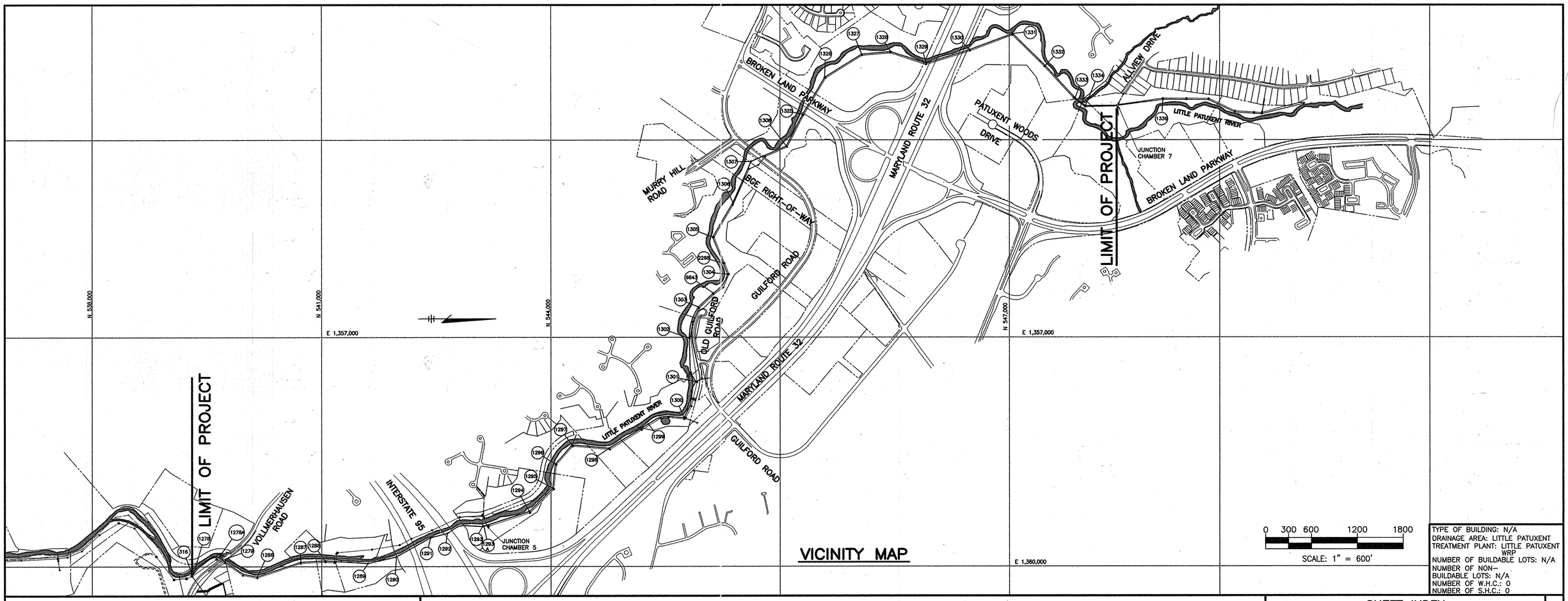

VICINITY MAP

TYPE OF BUILDING: N/A
DRAINAGE AREA: LITTLE PATUXENT
TREATMENT PLANT: LITTLE PATUXENT WRP
NUMBER OF BUILDABLE LOTS: N/A
NUMBER OF NON-BUILDABLE LOTS: N/A
NUMBER OF W.H.C.: 0
NUMBER OF S.H.C.: 0

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION

CAPITAL PROJECT S-6273

CONTRACT NO. 20-4760

HOWARD COUNTY, MARYLAND

BILL OF MATERIALS

ITEMS	QUANTITIES ESTIMATED	AS-BUILT QUANTITIES	AS-BUILT TYPE	AS-BUILT MANUFACTURER / SUPPLIER
–	–			

NAME OF UTILITY CONTRACTOR :

Sediment control measures for this contract will be implemented in accordance with Section 308 of the Specifications and as shown on these plans.

CHECKBOX	
AS-BUILT DATE	
SURVEY AND DRAFTING DIVISION	

This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R. Robertson — 12/18/12
HOWARD SOIL CONSERVATION DISTRICT — DATE

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Wes Davis — 2/25/13
DEVELOPER — DATE

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — DATE

PROFESSIONAL CERTIFICATION :

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27909, EXPIRATION DATE AUGUST 23, 2014.

David A. Vanderbeek
DAVID A. VANDERBEEK, P.E.

SHEET INDEX

PROJECT PURPOSE:

THE SECTION OF THE ORIGINAL LITTLE PATUXENT INTERCEPTOR CONTAINED WITHIN THIS PROJECT, FROM MH 1278 UP TO THE NEW JUNCTION CHAMBER No.7 WAS ORIGINALLY CONSTRUCTED IN 1966 UNDER CONTRACT No. 119-S, 120-S AND 121-S. THE MANHOLE INVERTS AND RIM ELEVATIONS SHOWN ON THESE DRAWINGS WERE SURVEYED IN 2006, HAVING HORIZONTAL DATUM NAD '83/'91 AND VERTICAL DATUM NAVD '88. THE PURPOSE OF THIS PROJECT WAS TO COUNTERACT H_2S DETERIORATION AND EXCESSIVE INFILTRATION AND INFLOW OF THE ORIGINAL INTERCEPTOR BY CONSTRUCTING A STRUCTURAL CIPP LINING WITHIN ALL PIPES, TO REPLACE SECTIONS OF MANHOLES WITH NEW PRECAST RISERS AND TOP SLABS AS REQUIRED AND THEN APPLY A STRUCTURAL LINER TO ALL MANHOLES.

EP-13-011

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/27/13
CHIEF, BUREAU OF ENGINEERING — DATE 2/25/13
CHIEF, BUREAU OF UTILITIES — DATE 2/27/13
CHIEF, UTILITY DESIGN DIVISION — DATE 2/25/13

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STATE OF MARYLAND — DAVID ANDREW VANDERBEEK — No. 27909 — REGISTERED PROFESSIONAL ENGINEER

DES: M.L.G.
DRN: J.K.
CHK: D.A.V.
DATE: 12/12/12

BY	NO.	REVISION	DATE

TITLE SHEET

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 9

AS-BUILT : 2-29-2016

G:\DRAWINGS\2007.337 LITTLE PATUXENT INTERCEPTOR IMPROVEMENTS\CURRENT\C-01-TITLE.dwg, 12/13/2012 1:39:03 PM, \\WESTMAIL\HP Designjet 1055CM

SANITARY SEWER REHABILITATION NOTES

1. REFER TO SPECIFICATIONS FOR CURED-IN-PLACE PIPE (CIPP) LINING REQUIREMENTS.
2. THE CONTRACTOR SHALL CLEAN AND CLOSED CIRCUIT TV (CCTV) INSPECT THE EXISTING SANITARY SEWER PRIOR TO CURED-IN-PLACE PIPE (CIPP) LINING TO VERIFY PIPE CHARACTERISTICS, AND IDENTIFY AND LOCATE ANY SEWER PIPE DEFECTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DEFECTS THAT COULD AFFECT THE INSTALLATION OF CIPP LINING. THE CONTRACTOR SHALL REPAIR PIPE DEFECTS PER THE COUNTY'S DIRECTION PRIOR TO INSTALLING THE LINER. ANY LARGE OBJECTS OR BLOCKAGES SHALL BE REMOVED FROM THE SEWER PRIOR TO LINING.
3. BY-PASS PUMPING SHALL BE CONDUCTED ACCORDING TO THE CONTRACT SPECIFICATIONS. SANITARY SEWER SERVICE SHALL BE MAINTAINED AT ALL TIMES. ALL KNOWN SEWER LINES THAT WILL REQUIRE BY-PASS PUMPING ARE SHOWN ON THE PLANS. THE PRIMARY INTERCEPTOR FLOW WILL BE DIVERTED INTO THE NEW PARALLEL INTERCEPTOR BY THE COUNTY PRIOR TO WORK COMMENCING.
4. EACH SECTION OF CIPP LINING SHALL BE INSTALLED AND CURED IN ONE MOBILIZATION AND REACH FROM MANHOLE TO MANHOLE OR MULTIPLE MANHOLE TO MANHOLE SEGMENTS.
5. POST-INSTALLATION CCTV INSPECTION MUST BE CONDUCTED FOR EACH SANITARY SEWER LINE TO CHECK FOR LINER DEFECTS OR WRINKLING.
6. REFER TO SPECIFICATIONS FOR CIPP LINING SUGGESTED SEQUENCE OF CONSTRUCTION.

MANHOLE REHABILITATION NOTES

1. REFER TO SPECIFICATIONS FOR MANHOLE REHABILITATION REQUIREMENTS.
2. EACH MANHOLE SHALL BE POWER-WASHED PRIOR TO ANY REHABILITATION WORK.
3. FLOW DIVERSION, BY-PASS PUMPING, OR FLOW-THROUGH PLUGS SHALL BE UTILIZED AT EACH MANHOLE TO ENSURE PROPER FUNCTION OF THE SEWER INTERCEPTOR. SANITARY SEWER SERVICE SHALL BE MAINTAINED AT ALL TIMES.
4. POINT REPAIR/PATCH WORK SHALL BE COMPLETED AND CURED PRIOR TO ANY MANHOLE LINING.
5. INSTALLATION OF MANHOLE STEPS AND FRAME AND COVER, IF SHOWN, SHALL BE COMPLETED PRIOR TO LINING OF THE MANHOLE.
6. MANHOLE LINING SHALL BE COMPLETED AND CURED IN ONE SETUP.
7. EACH MANHOLE THAT IS LINED SHALL PASS A HOLIDAY "SPARK" TEST PRIOR TO ACCEPTANCE PER THE CONTRACT SPECIFICATIONS.

GENERAL NOTES

1. Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
2. The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/'91 as projected by Howard County Geodetic Control Stations. All vertical controls are based on NAVD '88. Vertical Controls on the drawings are based on Howard County Geodetic Control Stations.
3. All pipe elevations shown are invert elevations unless otherwise noted on the plans.
4. For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (Latest Edition). The contractor shall have a copy of Volume IV on the job.
5. The contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:

AT&T	1-800-252-1133
BGE (Construction Services)	410-850-4620
BGE (Emergency)	410-685-1400
Bureau of Utilities	410-313-4900
Colonial Pipeline Co.	410-795-1390
Miss Utility	1-800-257-7777
State Highway Administration	410-531-5533
Verizon	1-800-743-0033 / 410-224-9210

6. The contractor shall be responsible for acquiring any additional staging and/or stockpile areas that he deems necessary.
7. The contractor shall be responsible for repairing and replacing any existing fences, signs, concrete curb, driveways, paving, curb and gutter pan, walkways, etc., damaged or removed during construction. All disturbed areas shall be returned to their original or better condition.
8. MDE Permit Tracking No. 20076408/07-NT-3268.
9. Contractor shall notify State Highway Administration, Rick Shagogue 240-409-4044, one week prior to working within SHA right-of-way at MD Route 32 and Interstate 95.

LEGEND

- EX. BUILDING
- EX. UNDERGROUND CABLE
- EX. UNDERGROUND ELECTRIC
- EX. OVERHEAD ELECTRIC LINES
- EX. 100 YR. FLOODPLAIN EASEMENT
- EX. UTILITY EASEMENT
- EX. CHAIN LINK FENCE
- EX. WOOD FENCE
- EX. 100 YR. FLOODPLAIN
- EX. UNDERGROUND GAS MAIN
- EX. 5 FOOT CONTOURS
- EX. FOOT PATH
- EX. PROPERTY BOUNDARY
- EX. ADJACENT PROPERTY BOUNDARY
- EX. BRIDGE
- EX. CENTERLINE ROAD
- EX. CURB & GUTTER
- EX. EDGE OF PAVEMENT
- EX. GUARDRAIL
- EX. PAVEMENT MARKINGS
- EX. ROAD RIGHT-OF-WAY
- EX. RIVER
- EX. RAILROAD TRACKS
- EX. WATERS OF THE U.S.
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. UNDERGROUND TELEPHONE LINE
- EX. WOODS LINE
- EX. SIDEWALK
- EX. WALLS
- EX. WETLANDS
- EX. WETLAND BUFFER
- EX. WATER MAIN, FIRE HYDRANT, VALVE & REDUCER
- EX. MANHOLE
- EX. MANHOLE TO BE REHABILITATED
- STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED ACCESS
- EX. SANITARY SEWER TO BE CIPP LINED
- LIMIT OF DISTURBANCE
- SILT FENCE
- SUPER SILT FENCE
- TREE PROTECTION FENCE
- EX. EVERGREEN TREE
- EX. SPECIMEN TREE
- EX. DECIDUOUS TREE
- EX. ELECTRICAL MANHOLE
- EX. SEWER MANHOLE
- EX. WATER METER
- EX. AIR RELEASE MANHOLE
- EX. STORM DRAIN MANHOLE
- EX. TELEPHONE MANHOLE
- EX. LIGHT POLE
- EX. GAS MANHOLE
- EX. UTILITY PEDESTAL
- EX. UTILITY POLE
- EX. SIGN

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	2/27/13 DATE	CHIEF, BUREAU OF ENGINEERING	2/25/13 DATE
CHIEF, BUREAU OF UTILITIES	2/27/13 DATE	CHIEF, UTILITY DESIGN DIVISION WD	2/25/13 DATE

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STATE OF MARYLAND — PROFESSIONAL ENGINEER — NO. 27909

DES: M.L.G.
DRN: J.K.
CHK: D.A.V.
DATE: 02/21/13

BY	NO.	REVISION	DATE

GENERAL NOTES

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

AS-BUILT: 2·29·2016

NOTES:

1. ① IF WALL IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPAIR / REPLACE IN KIND.
2. ② REFER TO MAINTENANCE OF TRAFFIC PLAN ON SHEET 9 FOR WORK ON VOLLMERHAUSEN ROAD.
3. ③ CONTRACTOR SHALL NOT HAVE VEHICULAR ACCESS UNDER NORTH BOUND INTERSTATE 95 OVERPASS. TRUCK TURN-AROUND SPACE IS SHOWN ON THIS SHEET.
4. ④ CONSTRUCTION ACCESS SHOWN IS WITHIN THE EXISTING SEWER EASEMENT AND TWENTY FEET WIDE UNLESS OTHERWISE NOTED.
5. ⑤ CONTRACTOR SHALL USE "BEST MANAGEMENT PRACTICES (BMPS)" WHEN WORKING WITHIN WETLANDS AND WETLAND BUFFER AREAS, SUCH AS WOODEN MATS FOR ACCESS ROADWAYS.
6. ⑥ IF ACCESS IS NEEDED ON THE OTHER SIDE THE LITTLE PATUXENT RIVER FOR BYPASS PUMPING ACTIVITIES, THE CONTRACTOR SHALL COORDINATE USE OF PARK PATHS FROM VOLLMERHAUSEN ROAD WITH THE DEPARTMENT OF RECREATION & PARKS. NO VEHICLE LARGER THAN A PICK-UP TRUCK SHALL CROSS THE EXISTING FOOT BRIDGES.
7. ⑦ CONTRACTOR SHALL NOT SET UP CIPP LINING AT EX. MH 1279. LINING SHALL TAKE PLACE FROM EX. MH 1286 AND CONTINUE TO EX. MH 1278A WITH TEMPORARY LANE CLOSURE FOR CUTTING LINER AT EX. MH 1279. REFER TO SPECIFICATIONS FOR SUGGESTED SEQUENCE OF CONSTRUCTION.
8. ⑧ STOCKPILING WILL NOT BE PERMITTED ON SITE.
9. ⑨ SILT FENCE SHALL BE INSTALLED ON THE DOWNHILL SIDE OF ALL MANHOLES THAT REQUIRE EXCAVATION. SEE "TYPICAL DETAIL FOR EROSION AND SEDIMENT CONTROL FOR MANHOLE WORK" ON SHEET 7.
10. ⑩ SPOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 2/27/13	CHIEF, BUREAU OF ENGINEERING	DATE 2/25/13
CHIEF, BUREAU OF UTILITIES	DATE 2/27/13	CHIEF, UTILITY DESIGN DIVISION WD	DATE 2/25/13

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STATE OF MARYLAND — PROFESSIONAL ENGINEER

DES: M.L.G.				
DRN: J.K.				
CHK: D.A.V.				
DATE: 02/21/13	BY	NO.	REVISION	DATE

SEWER MAIN AND MANHOLE
REHABILITATION PLAN

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 9

AS-BUILT: 2·29·2016

G:\DRAWINGS\2007.337 LITTLE PATUXENT INTERCEPTOR IMPROVEMENTS\CURRENT\C-03-PLAN.dwg, 2/21/2013 2:44:50 PM, \\WESTMAIL\HP Designjet 105CM

MATCHLINE SEE SHEET 3 FOR CONTINUATION
LITTLE PATUXENT RIVER
EX. 36" RCP (CONTR. 120-S) 596 LF TO BE CIPP LINED CIPP THICKNESS = 21mm
EX.MH 1299 RIM 255.0± INV. 245.65
EX. 36" RCP (CONTR. 120-S) 487 LF TO BE CIPP LINED CIPP THICKNESS = 21mm
EX.MH 1300 RIM 258.0± INV. 246.65
EX. QUARRY
N 545,600
E 1,356,300
CIPP THICKNESS = 20mm EX. 36" RCP (CONTR. 120-S) 498 LF TO BE CIPP LINED
RIM 260.05 INV. 247.52 EX.MH 1301
PERENNIAL STREAM 2WS6 (MDE / CORPS PERMIT #07-NT-3268/200764080) SEE NOTE 5
RIM 259.0± INV. 250.61 EX.MH 1302
EX. 36" RCP (CONTR. 120-S) 576 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
EX. 36" RCP (CONTR. 120-S) 420 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
N 545,600
E 1,356,800
OLD GUILFORD ROAD
NO VEHICLE PARKING. SEE NOTE 2
EX.MH 3095-S11 DEPTH: 9'± FOR BYPASS PUMPING
EX. 12" S (CONTR. 20-3095)
STAGING AND STOCKPILE SEE NOTE 1
PROPOSED CONSTRUCTION ACCESS
EX.MH 9846 DEPTH: 6'± FOR BYPASS PUMPING
SEE NOTE 5
GUILFORD ROAD
E 1,356,800
N 546,400
RIM 262.56 INV. 252.57 EX.MH 1303
EX. 36" RCP (CONTR. 120-S) 256 LF TO BE CIPP LINED CIPP THICKNESS = 17mm
EX.MH 9843 RIM 263.76 INV. 253.19
RIM 263.99 INV. 253.85 EX.MH 2268
STABILIZED CONSTRUCTION ENTRANCE
EPHEMERAL STREAM 2WS7 (MDE / CORPS PERMIT #07-NT-3268/200764080) SEE NOTE 5
SEE NOTE 5
EX. 8" S (CONTR. 24-1012)
EX. 36" RCP (CONTR. 120-S) 149 LF TO BE CIPP LINED CIPP THICKNESS = 17mm
EX. 36" RCP (CONTR. 120-S) 309 LF TO BE CIPP LINED CIPP THICKNESS = 17mm
EX.MH 9843A DEPTH: 6'± FOR BYPASS PUMPING
EX.MH 1304 RIM 271.0± INV. 253.86
DEPTH: 12'± FOR BYPASS PUMPING EX.MH 2269
RIM 264.0± INV. 254.63 EX.MH 1305
EX. 36" RCP (CONTR. 120-S) 365 LF TO BE CIPP LINED CIPP THICKNESS = 17mm
EX. 40' WIDE SANITARY EASEMENT
PERENNIAL STREAM 2WS8 (MDE / CORPS PERMIT #07-NT-3268/200764080) SEE NOTE 5
SEE NOTE 10
EX. 10" S (CONTR. 24-1012)
MATCHLINE SEE BELOW FOR CONTINUATION
DEPTH: 8'± FOR BYPASS PUMPING EX.MH 6442
EX. 8" (A.C.P. CONTR. C-383A-W&S)
PERENNIAL STREAM 2WS5 (MDE / CORPS PERMIT #07-NT-3268/200764080) SEE NOTE 5
EX. 8" S. 24-1051-D)
PLAN
SCALE: 1" = 100'

MATCHLINE SEE ABOVE FOR CONTINUATION
LITTLE PATUXENT RIVER
EX. 36" RCP (CONTR. 120-S) 516 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
EX. 36" RCP (CONTR. 120-S) 581 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
INTERMITTENT STREAM 2WS9 (MDE / CORPS PERMIT #07-NT-3268/200764080) SEE NOTE 5
N 546,100
E 1,355,300
EX.MH 1306 RIM 268.71 INV. 255.11
EX. 8" S (CONTR. 24-1079)
EX.MH 9851 DEPTH: 6.5'± FOR BYPASS PUMPING
RIM 268.0± INV. 255.86 EX.MH 1307
EX.MH 9386 DEPTH: 12'± FOR BYPASS PUMPING
EX. 8" S (CONTR. 24-0881)
SEE NOTE 6
BGE RIGHT-OF-WAY
GUILFORD ROAD OVERPASS
PERENNIAL STREAM 2WS10 (MDE / CORPS PERMIT #07-NT-3268/200764080) SEE NOTE 5
EX. 36" RCP (CONTR. 120-S) 594 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
RIM 267.0± INV. 256.73 EX.MH 1308
E 1,356,000
N 547,100
EX. 40' WIDE SANITARY EASEMENT
PERENNIAL STREAM 2WS11 (MDE / CORPS PERMIT #07-NT-3268/200764080)
ACCESS ROADWAY SEE NOTE 8
EX. 8" S (CONTR. 315 W&S)
RIM 268.54 INV. 257.21 EX.MH 1325
EX. 36" RCP (CONTR. 121-S) 458 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
SEE NOTE 5
SEE NOTE 7
BROKEN LAND PARKWAY OVERPASS
EX. 36" RCP (CONTR. 121-S) 554 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
FOR WATERWAY CROSSING SEE NOTE 3
RIM 268.0± INV. 258.02 EX.MH 1326
EX.MH 4828 DEPTH: 7'± FOR BYPASS PUMPING
INTERMITTENT STREAM 2WS12 (MDE / CORPS PERMIT #07-NT-3268/200764080)
EX. 36" RCP (CONTR. 121-S) 563 LF TO BE CIPP LINED CIPP THICKNESS = 18mm
PROPOSED CONSTRUCTION ACCESS
EX. 8" S (CONTR. 24-1025)
EX.MH 1025-1 DEPTH: 8'± FOR BYPASS PUMPING
EX.MH 1327 RIM 269.0± INV. 258.82
EX. 36" RCP (CONTR. 121-S) 370 LF TO BE CIPP LINED
MATCHLINE SEE SHEET 5 FOR CONTINUATION
E 1,355,300
N 547,100
PLAN
SCALE: 1" = 100'

NOTES:

1. CONTRACTOR MAY UTILIZE THE EXISTING CUL-DE-SAC ON WEST END OF OLD GUILFORD ROAD AS TEMPORARY STAGING AND STOCKPILE AS NEEDED.
2. NO VEHICLE PARKING SHALL BE PERMITTED ON OLD GUILFORD ROAD AND CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES.
3. REFER TO DETAIL 1.3 ON SHEET 7 FOR INSTALLING INTERMITTENT STREAM CROSSING 2WS12.
4. CONSTRUCTION ACCESS SHOWN IS WITHIN THE EXISTING SEWER EASEMENT AND TWENTY FEET WIDE UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL NOT HAVE VEHICULAR ACCESS ACROSS 2WS5, 2WS6, 2WS7, 2WS8, 2WS9, 2WS10, AND 2WS11.
6. OVERHEAD CLEARANCE UNDER GUILFORD ROAD WITHIN THE EASEMENT IS APPROXIMATELY 11.0'.
7. OVERHEAD CLEARANCE UNDER BROKEN LAND PARKWAY WITHIN THE EASEMENT IS APPROXIMATELY 12.5'. CONTRACTOR MAY EXCAVATE UNDER BROKEN LAND PARKWAY UP TO TWO-FEET MAXIMUM DEPTH TO ALLOW FOR VEHICLE / BOILER TRUCK PASSAGE. WHEN ALL REHABILITATION IS COMPLETE THE SITE SHALL BE RETURNED TO ORIGINAL CONDITION.
8. SEE DETAIL ON SHEET 6 FOR ACCESS ROAD INSTALLATION. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF ACCESS AGREEMENT WITH THE PROPERTY OWNER. SEE APPENDIX D, LICENSE AGREEMENT, OF DOCUMENT G IN THE SPECIFICATIONS.
9. CONTRACTOR SHALL USE "BEST MANAGEMENT PRACTICES (BMPS)" WHEN WORKING WITHIN WETLANDS AND WETLAND BUFFER AREAS, SUCH AS WOODEN MATS FOR ACCESS ROADWAYS.
10. REPAIR OR REPLACEMENT OF EXISTING FOOTPATH SHALL BE AT THE ENGINEER'S DIRECTION. SEE DETAIL 5 ON SHEET 6.
11. STOCKPILING WILL NOT BE PERMITTED ON SITE.
12. SILT FENCE SHALL BE INSTALLED ON THE DOWNHILL SIDE OF ALL MANHOLES THAT REQUIRE EXCAVATION. SEE "TYPICAL DETAIL FOR EROSION AND SEDIMENT CONTROL FOR MANHOLE WORK" ON SHEET 7.
13. SPOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND					
DIRECTOR OF PUBLIC WORKS	DATE 2/21/13	CHIEF, BUREAU OF ENGINEERING	DATE 2/25/13		
CHIEF, BUREAU OF UTILITIES	DATE 2/27/13	CHIEF, UTILITY DESIGN DIVISION	DATE 2/25/13		

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STATE OF MARYLAND PROFESSIONAL ENGINEER

DES: M.L.G.				
DRN: J.K.				
CHK: D.A.V.				
DATE: 02/21/13	BY	NO.	REVISION	DATE

SEWER MAIN AND MANHOLE REHABILITATION PLAN

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

AS-BUILT: 2·29·2016

MANHOLE REHABILITATION SCHEDULE

Manhole ID	Diam. (ft.)	Replace Manhole Stack	Manhole Lining	Replace Frame & Cover	Hydrophillic Grout	Repair Brick	Install / Replace Steps
1279	5		X✓		*	X	*
1286	5	*3' X	X✓	X			*
1287	5		X✓				1 X✓
1288	5		X✓				1 X✓
1289	5	*6' X	X✓	X✓		X	*
1290	5	X✓	X✓				
1291	5		X✓		X		*
1292	5		X✓		X		*
1293	5	X✓	X✓		X		
1294	5	*8' X	X✓	X	X	X	*
1295	5		X✓				*
1296	5		X✓		X		3 X✓
1297	5		X✓				4 X✓
1298	5	*8' X	X✓	X	X		*
1299	5		X✓				*
1300	5		X✓		X		1 X✓
1301	5		X✓				*
1302	5	*5' X	X✓	X			*

Manhole ID	Diam. (ft.)	Replace Manhole Stack	Manhole Lining	Replace Frame & Cover	Hydrophillic Grout	Repair Brick	Install / Replace Steps
1303	5		X✓				*
9843	5		X✓				
1304	5		X✓		X		
2268	5		X✓				
1305	5		X✓		X		7 X✓
1306	5		X✓				*
1307	5	*6' X	X✓		*	X	*
1308	5		X✓				
1325	5		X✓		X✓	X	
1326	5		X✓				*
1327	5	*6' X	X✓		*	X	*
1328	5		X✓			X	*
1329	5		X✓		*	X	*
1330	5		X✓		X		
1331	5	*6' X	X✓		X✓	X	1 X✓
1332	5		X✓		X		1 X✓
1333	5		X✓		X✓	X	7 X✓
1334	5		X✓		X✓	X	7 X✓

MANHOLE ID	** NEW MANHOLE	REMARKS
1290	X	TO BENCH 8'
1293	X	TO BENCH 11'
1301	X	TO BENCH 9.5'

** INCLUDES TOP SLAB, FRAME & COVER, STEPS AND LINING

MANHOLE REHABILITATION SCHEDULE NOTES:

1. FOR DETAIL ON MANHOLE STACK REPLACEMENT SEE DETAIL 3 ON SHEET 6.
2. FOR MANHOLE LINING SEE DETAIL ON SHEET 6 IN ADDITION TO THE TECHNICAL SPECIFICATIONS OF THIS CONTRACT. "REPAIRING BRICK" SHALL BE CONSIDERED INCIDENTAL TO MANHOLE LINING.
3. FOR REPLACEMENT FRAME AND COVER AND REPLACEMENT STEPS, REFER TO SPECIAL PROVISION 17 OF SPECIFICATIONS AND DETAIL 2 ON SHEET 6 OF PLANS.
4. FOR HYDROPHILIC GROUTING REQUIREMENTS REFER TO THE CONTRACT SPECIFICATIONS.

* PLUS SLAB, FRAME & COVER

NOTES:

1. REFER TO DETAIL 1.3 ON SHEET 7 FOR INSTALLING WATERWAY CROSSING.
2. REFER TO DETAIL 1.3 ON SHEET 7 FOR INSTALLING PERENNIAL STREAM CROSSING 2WS19.
3. PIPE SEGMENTS FROM JUNCTION CHAMBER NO. 7 TO EX. MH 1334A SHALL RECEIVE A NON-EXCAVATION POINT REPAIR OF 12 LF FROM STATION 17' TO 29', STARTING AT JUNCTION CHAMBER NO. 7. NON-EXCAVATION POINT REPAIR SHALL BE COMPLETED PRIOR TO ANY CIPP LINING WORK AND ALL ACTIVE INFILTRATION SHALL BE ELIMINATED. SEE CONTRACT SPECIFICATIONS FOR INFORMATION ON NON-EXCAVATION POINT REPAIR MATERIALS.
4. CONSTRUCTION ACCESS SHOWN IS WITHIN THE EXISTING SEWER EASEMENT AND TWENTY FEET WIDE UNLESS OTHERWISE NOTED.
5. LIMIT OF DISTURBANCE SHOWN IS COINCIDENT WITH THE EXISTING SEWER EASEMENT UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL COORDINATE ACCESS AND WORK SCHEDULE WITH HOWARD COUNTY AND ALL OTHER CONTRACTORS WORKING IN THE VICINITY.
7. OVERHEAD CLEARANCE UNDER MD RT-32 WITHIN THE EASEMENT IS APPROXIMATELY 18.0'.
8. CONTRACTOR SHALL USE "BEST MANAGEMENT PRACTICES (BMPS)" WHEN WORKING WITHIN WETLANDS AND WETLAND BUFFER AREAS, SUCH AS WOODED MATS FOR ACCESS ROADWAYS.
9. REPAIR OR REPLACEMENT OF EXISTING FOOTPATH SHALL BE AT THE ENGINNEER'S DIRECTION. SEE DETAIL 5 ON SHEET 6.
10. STOCKPILING WILL NOT BE PERMITTED ON SITE.
11. SILT FENCE SHALL BE INSTALLED ON THE DOWNHILL SIDE OF ALL MANHOLES THAT REQUIRE EXCAVATION. SEE "TYPICAL DETAIL FOR EROSION AND SEDIMENT CONTROL FOR MANHOLE WORK" ON SHEET 7.
12. SPOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 2/27/13	CHIEF, BUREAU OF ENGINEERING	DATE 2/25/13
CHIEF, BUREAU OF UTILITIES	DATE 2/22/13	CHIEF, UTILITY DESIGN DIVISION WD	DATE 2/25/13

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STATE OF MARYLAND — DAVID ANDREW VANDERBEEK — No. 27909 — REGISTERED PROFESSIONAL ENGINEER

DES: M.L.G.
DRN: J.K.
CHK: D.A.V.
DATE: 02/21/13

BY	NO.	REVISION	DATE

SEWER MAIN AND MANHOLE REHABILITATION PLAN

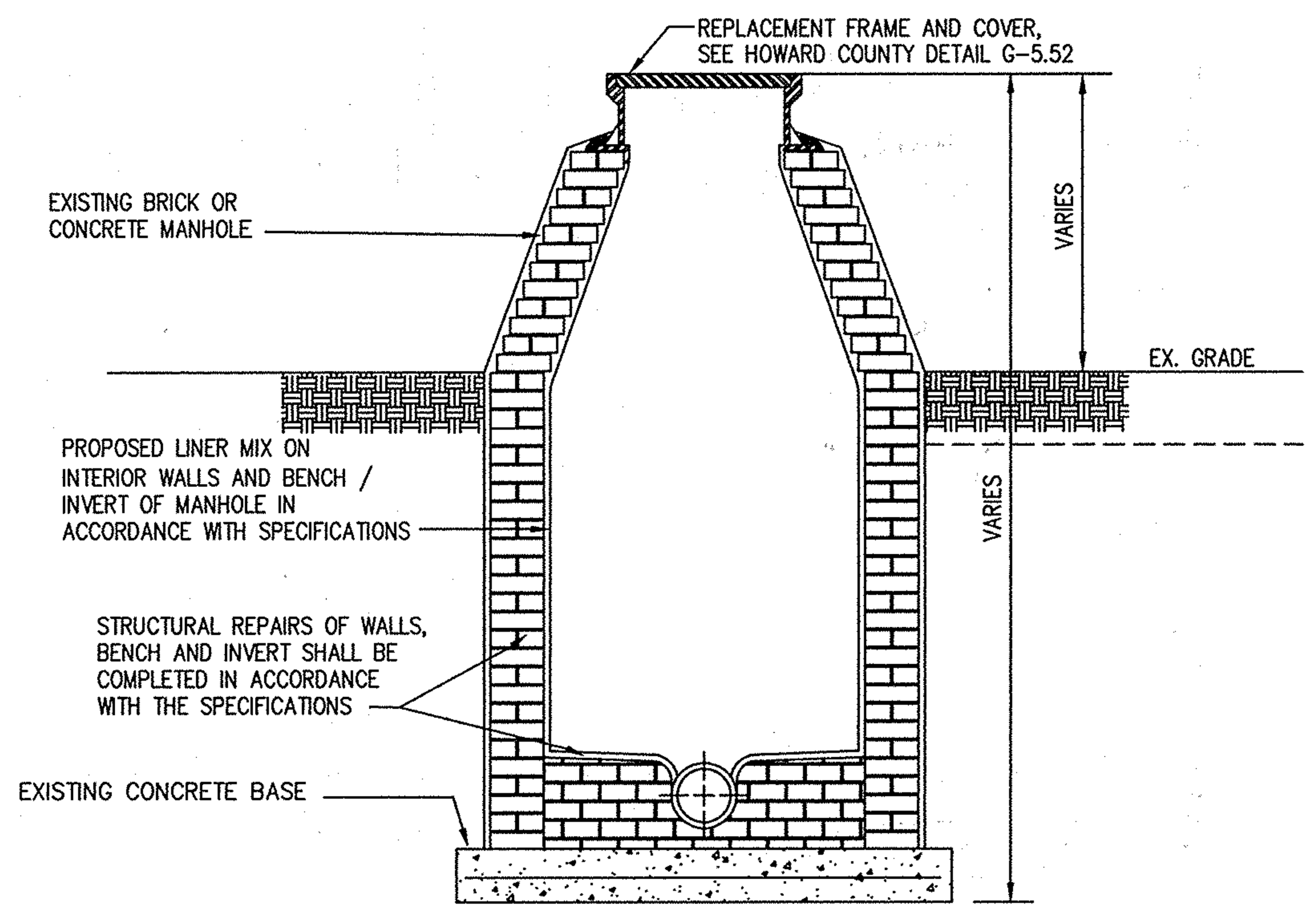
600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 9

AS-BUILT: 2·29·2016

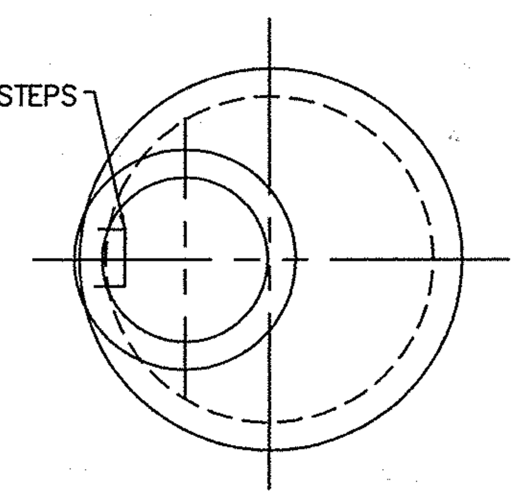


NOTES:

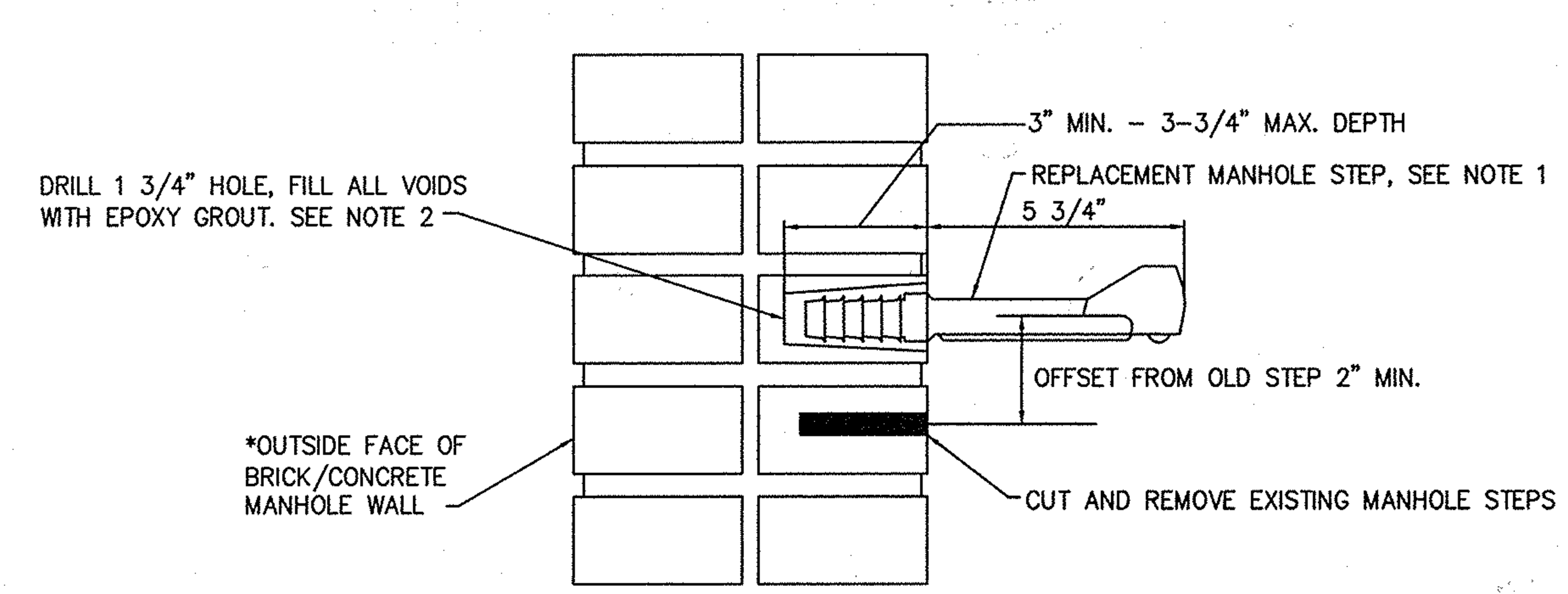
1. WHEN MANHOLE INTERIOR WALLS ARE IDENTIFIED TO BE REHABILITATED, THE STEPS SHALL BE REPLACED, AS DETERMINED BY THE ENGINEER. ANY VOID SPACE SHALL BE FILLED WITH NON-SHRINK GROUT PRIOR TO LINING. SEE DETAIL THIS SHEET FOR STEP REPLACEMENT.
2. IF MANHOLE BENCH IS IDENTIFIED AS REQUIRING RECONSTRUCTION, THE WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE SPECIFICATIONS.
3. MANHOLES WITH EXISTING PARTIAL PLASTIC LINER SHALL BE LINED FROM THE INVERT UP TO WHERE THE PLASTIC LINER BEGINS IN ACCORDANCE WITH THE SPECIFICATIONS.

DETAIL 1 – MANHOLE REHABILITATION

NOT TO SCALE



MANHOLE PLAN



TYPICAL SECTION

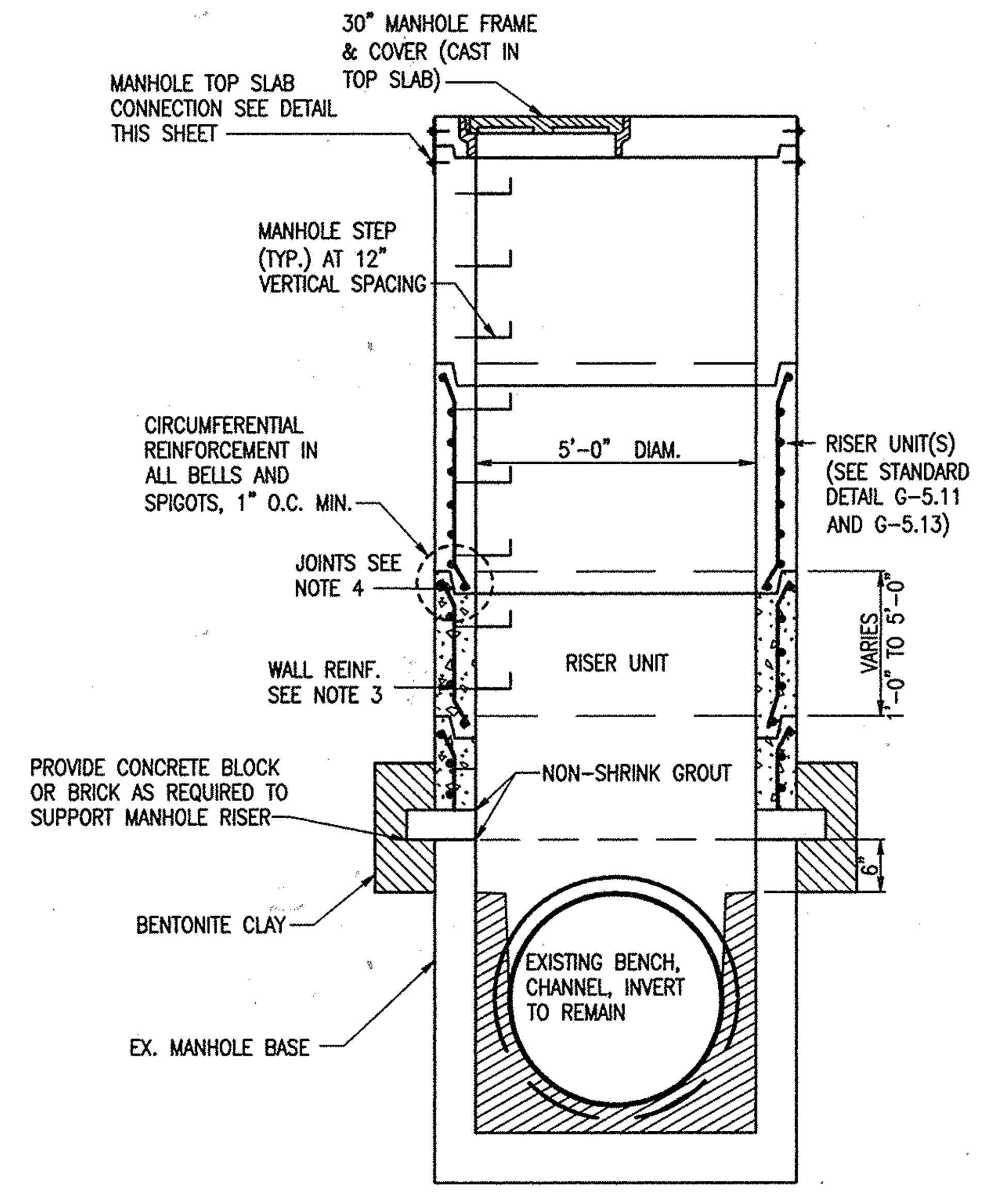
* CONCRETE MANHOLE NOT SHOWN. MANHOLE STEP INSTALLATION IS TYPICAL FOR BOTH.

DETAIL 2 – MANHOLE STEP REPLACEMENT

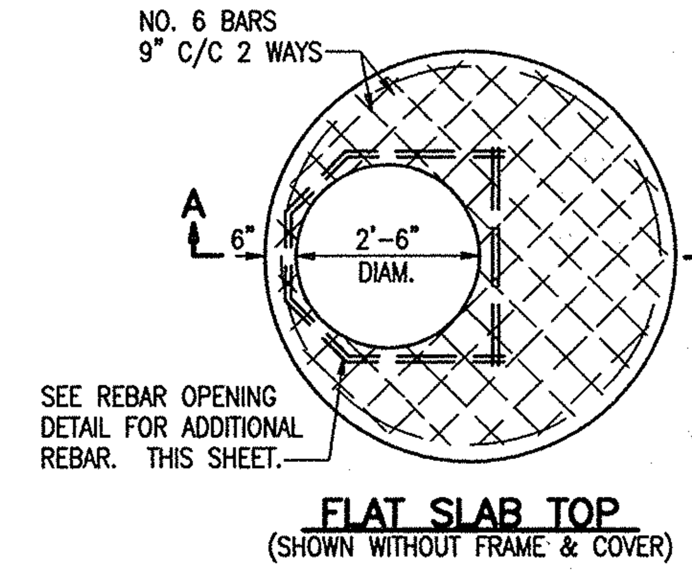
NOT TO SCALE

NOTES:

1. DRILL TWO HOLES IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. HOLES SHALL BE PARALLEL AND 12" VERTICALLY ON CENTER. CLEAN ALL DIRT AND OIL FROM THE HOLES; FILL VOIDS WITH EPOXY GROUT.

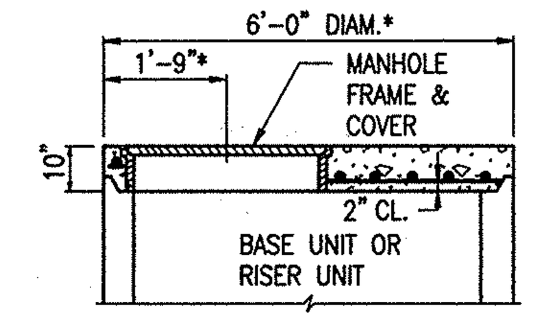


SECTION VIEW



FLAT SLAB TOP

(SHOWN WITHOUT FRAME & COVER)



SECTION A–A

NOTES

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478 AND THE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON STANDARD DETAIL G-5.11.
2. CONCRETE SHALL BE MIX NO.6 (4500 PSI).
3. WALL REINFORCEMENT FOR BASE UNITS AND RISER UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.23 IN 2/FT FOR THE 60" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND A-82. REINFORCEMENT BARS SHALL MEET ASTM A-615, GRADE 60.
4. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING RUBBER O-RING GASKETS METTING ASTM A-361 & C-443.
5. MINIMUM DISTANCE BETWEEN PIPE OPENINGS IN MANHOLE WALL SHALL BE 12 INCHES.
6. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
7. NO MORE THAN ONE 1' RISER SECTION MAY BE USED PER MANHOLE.
8. MANHOLE INTERIOR LINER IS REQUIRED. REFER TO MANHOLE REHABILITATION SECTION OF THE TECHNICAL SPECIFICATIONS.

* DIMENSIONS TO BE CONFIRMED BY THE MANUFACTURER

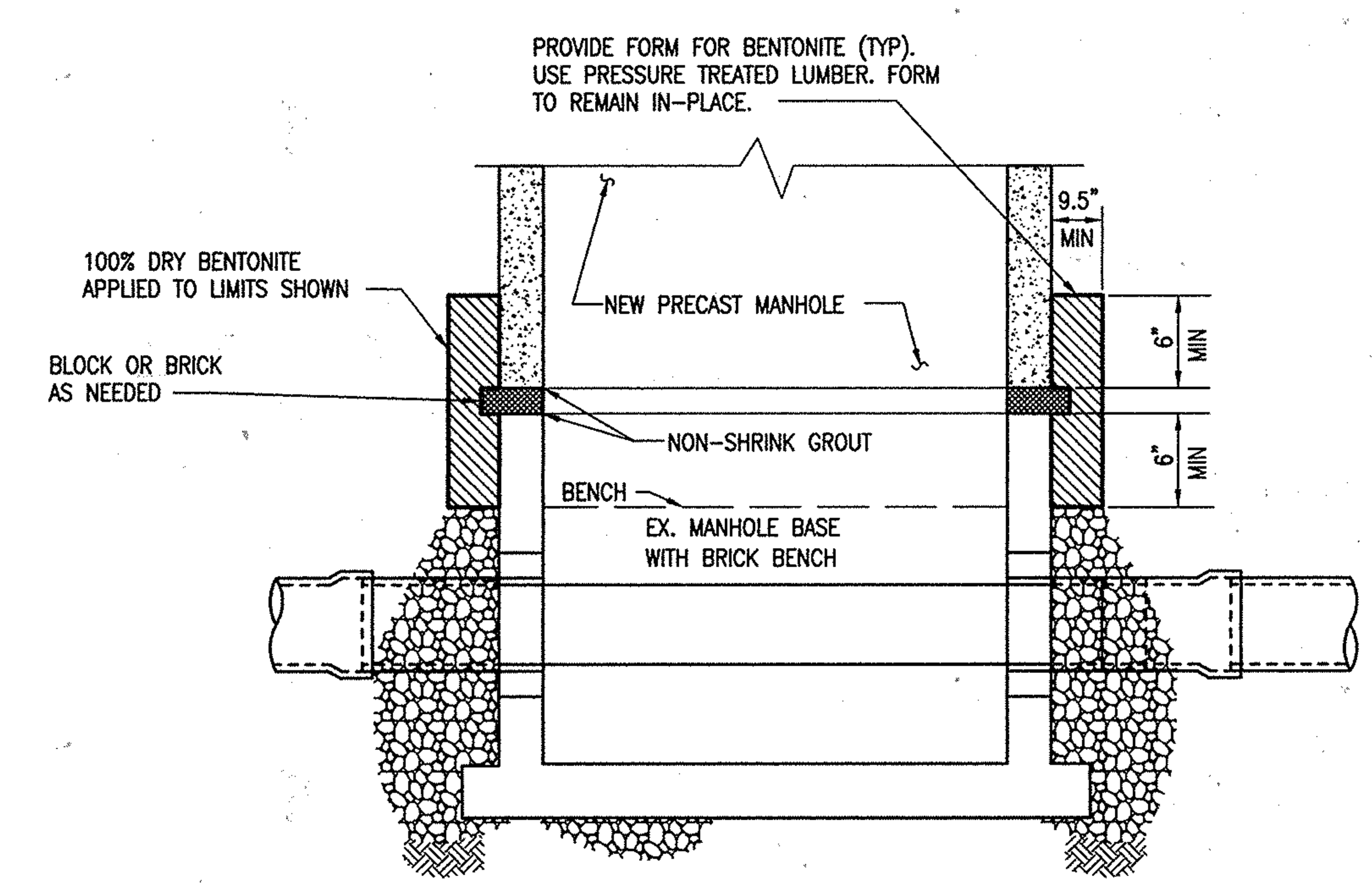
NOTE: "STANDARD DETAIL" REFERS TO DETAILS IN HOWARD COUNTY DESIGN MANUAL VOLUME IV – STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

DETAIL 3 – 5'-0" DIAMETER PRECAST MANHOLE RISER

NO SCALE

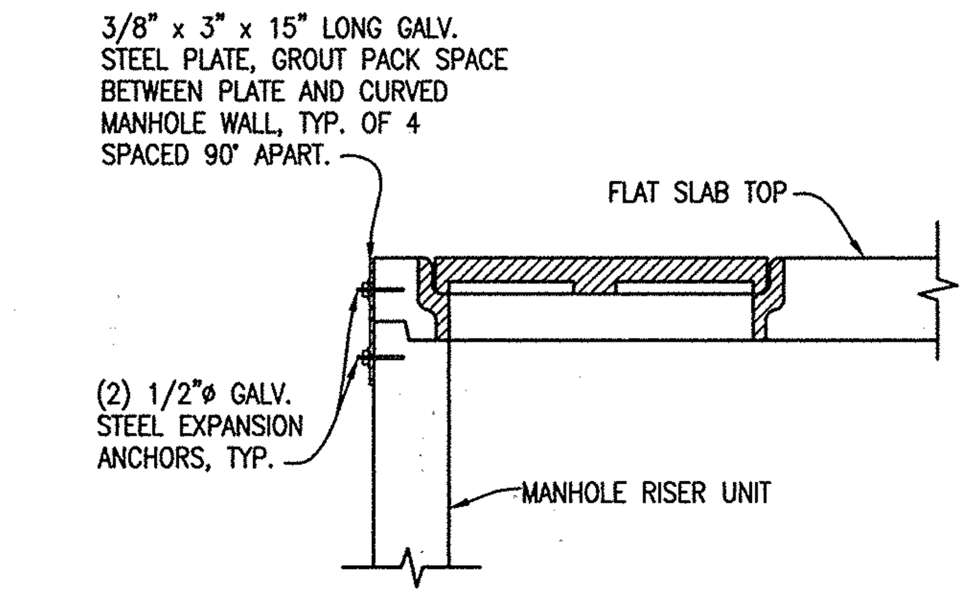
NOTES

1. CONTRACTOR TO DEMOLISH MANHOLE STACK FROM GRADE TO 6" ABOVE MANHOLE BENCH.
2. MANHOLE STACK SHALL BE REPLACED WITH 5' PRECAST CONCRETE RISER SECTIONS TO THE EXISTING RIM ELEVATION.
3. MANHOLE BENCH TO NEW MANHOLE STACK SHALL HAVE BENTONITE CLAY PLACED PER THE DETAIL BELOW.



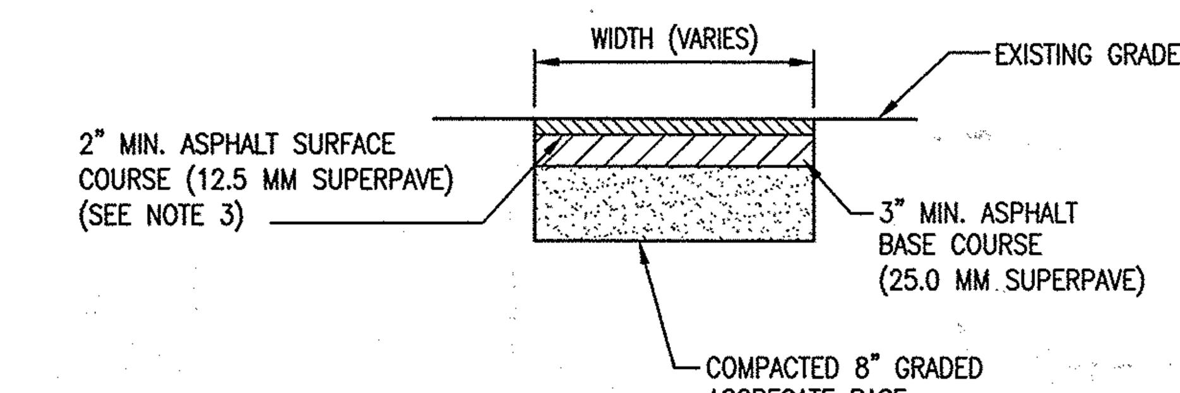
DETAIL 4 – PRE-CAST RISER TO MANHOLE CONNECTION

NO SCALE



MANHOLE SLAB TOP CONNECTION

NO SCALE

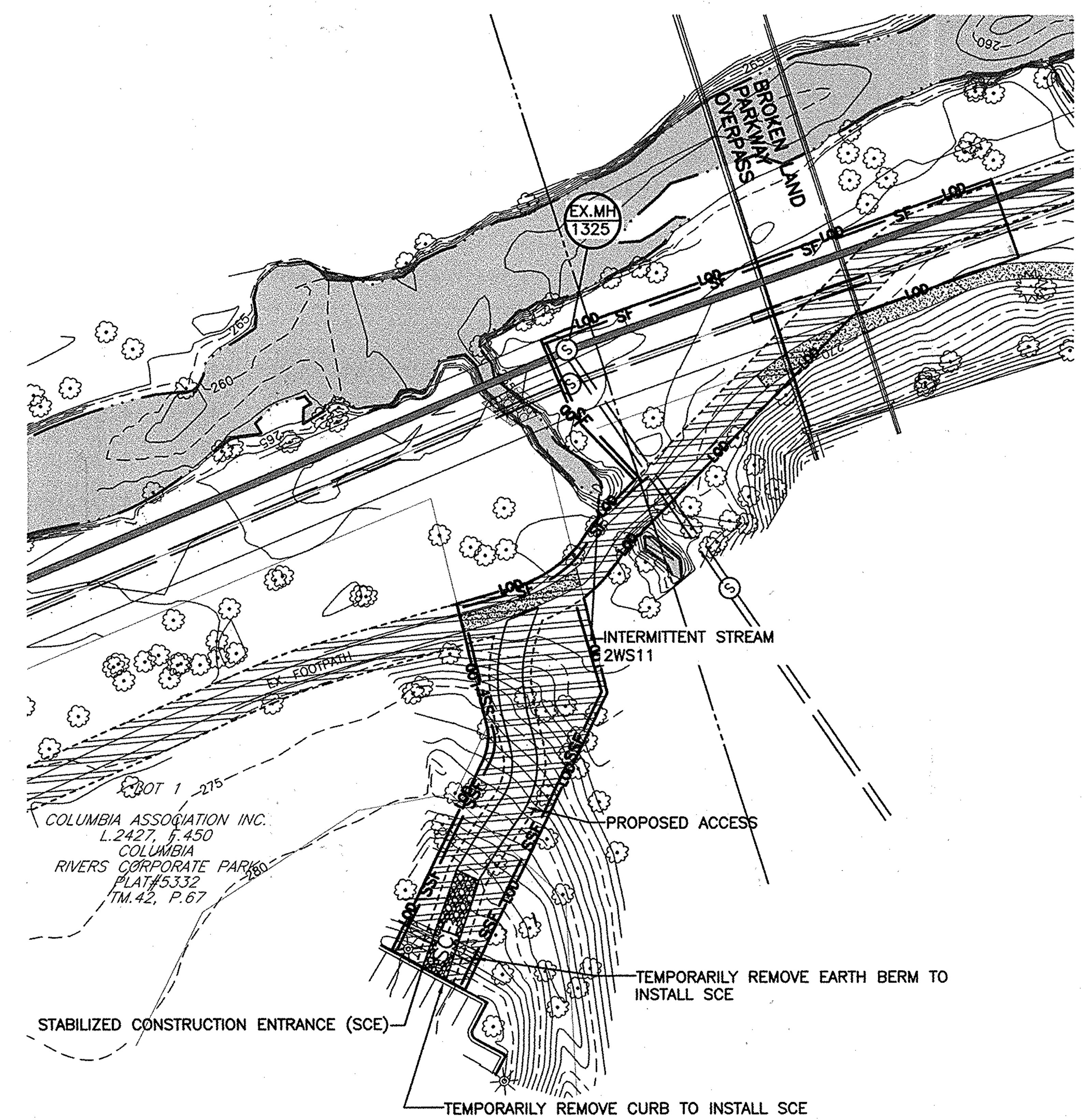


NOTES:

1. REMOVE EXISTING PAVEMENT TO FULL DEPTH.
2. ROLL EXISTING GRADED AGGREGATE BASE TO ACHIEVE MAXIMUM DENSITY.
3. INSTALL 3" MINIMUM ASPHALT BASE COURSE, PROVIDE A TACK COAT OF AE-4 EMULSION APPLIED AT THE RATE OF 0.05 GAL/SQ.YD. AND INSTALL 2" MINIMUM ASPHALT SURFACE COURSE.
4. SAWCUT JOINTS FULL DEPTH OF ASPHALT COURSES. TACK COAT JOINTS IN SURFACE COURSE.
5. FOOTPATH SHALL BE REPLACED TO THE EXISTING WIDTH.
6. WHERE DIRECTED BY THE ENGINEER, THE FOOTPATH MAY BE REPAIRED IN PLACE OF FULL REPLACEMENT. REFER TO SPECIFICATIONS FOR REPAIR DETAILS.

DETAIL 5 – FOOTPATH/ROADWAY REPLACEMENT

NOT TO SCALE



DETAIL 6 – ACCESS ROAD PLAN

SCALE: 1" = 50'

NOTES:

1. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF ACCESS AGREEMENT FROM PARKING LOT WITH PROPERTY OWNER, PRIOR TO INSTALLATION OF THE STABILIZED CONSTRUCTION ENTRANCE AND SILT FENCE. SEE APPENDIX D, LICENSE AGREEMENT, OF DOCUMENT G IN THE SPECIFICATIONS.
2. INSTALL SILT FENCE ON BOTH SIDES OF CLEARED CONSTRUCTION AREA.
3. REMOVE THE EARTH BERM BEHIND THE CURB AND REMOVE APPROXIMATELY 20 LINEAR FEET OF CURB IN ORDER TO INSTALL sce. THIS IS INTENDED TO ALLOW THE CIPP LINING TRUCKS AND OTHER CONSTRUCTION VEHICLES TO MAKE A SMOOTH TRANSITION IN DRIVING OFF THE PARKING LOT OF FIRST POTOMAC PROPERTIES ONTO THE PROPOSED ACCESS ROAD. WHEN THE PROJECT IS COMPLETE, THE CONTRACTOR SHALL REMOVE THE SCE AND ACCESS ROAD AND REPLACE THE EARTH BERM AND CURB, RESTORING THE ENTIRE AREA TO ORIGINAL OR BETTER CONDITION.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

2/20/13		2/25/13	
DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
2/27/13		2/25/13	
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE

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STATE OF MARYLAND · PROFESSIONAL ENGINEER

DES: M.L.G.				
DRN: J.K.				
CHK: D.A.V.				
DATE: 02/21/13	BY	NO.	REVISION	DATE

CONSTRUCTION DETAILS

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

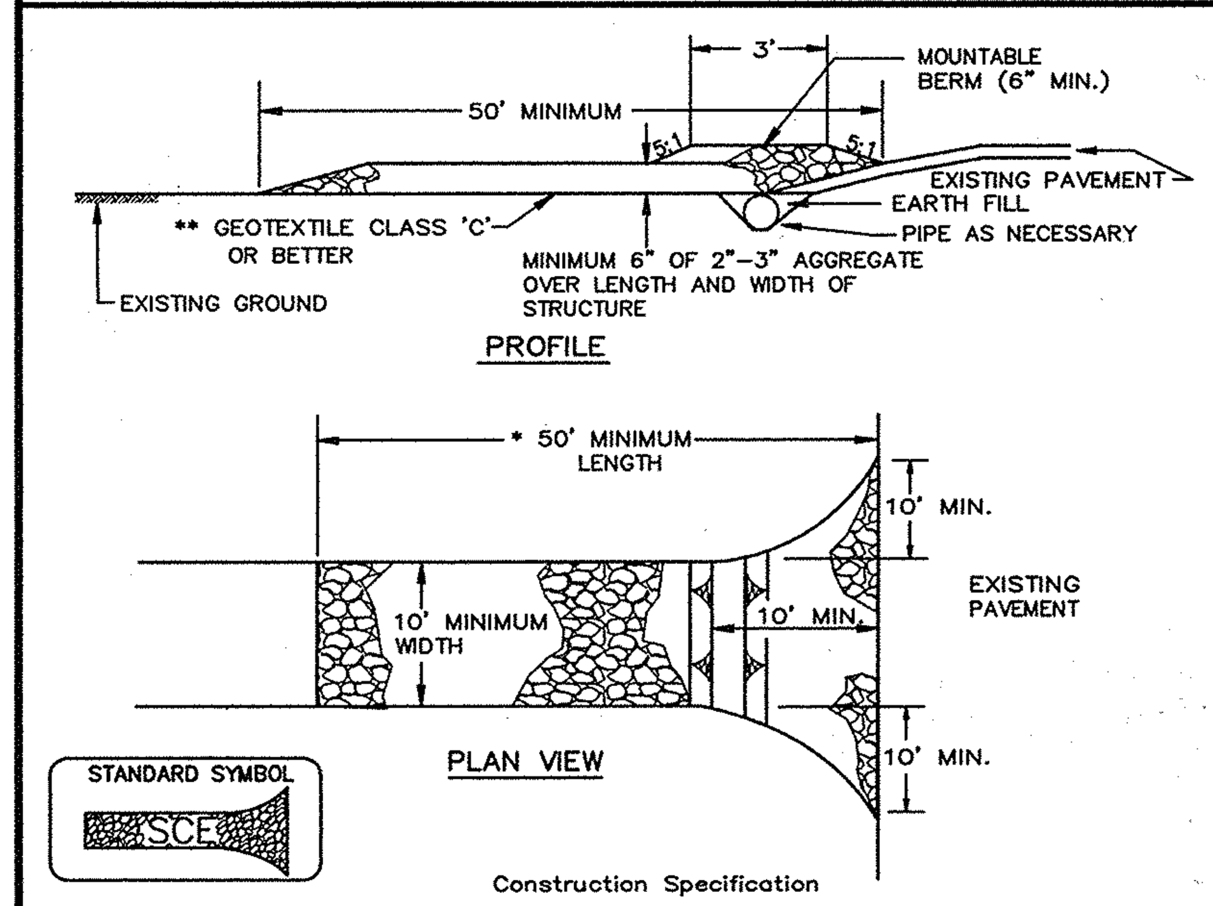
LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 6 OF 9

AS-BUILT · 2·29·2016

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

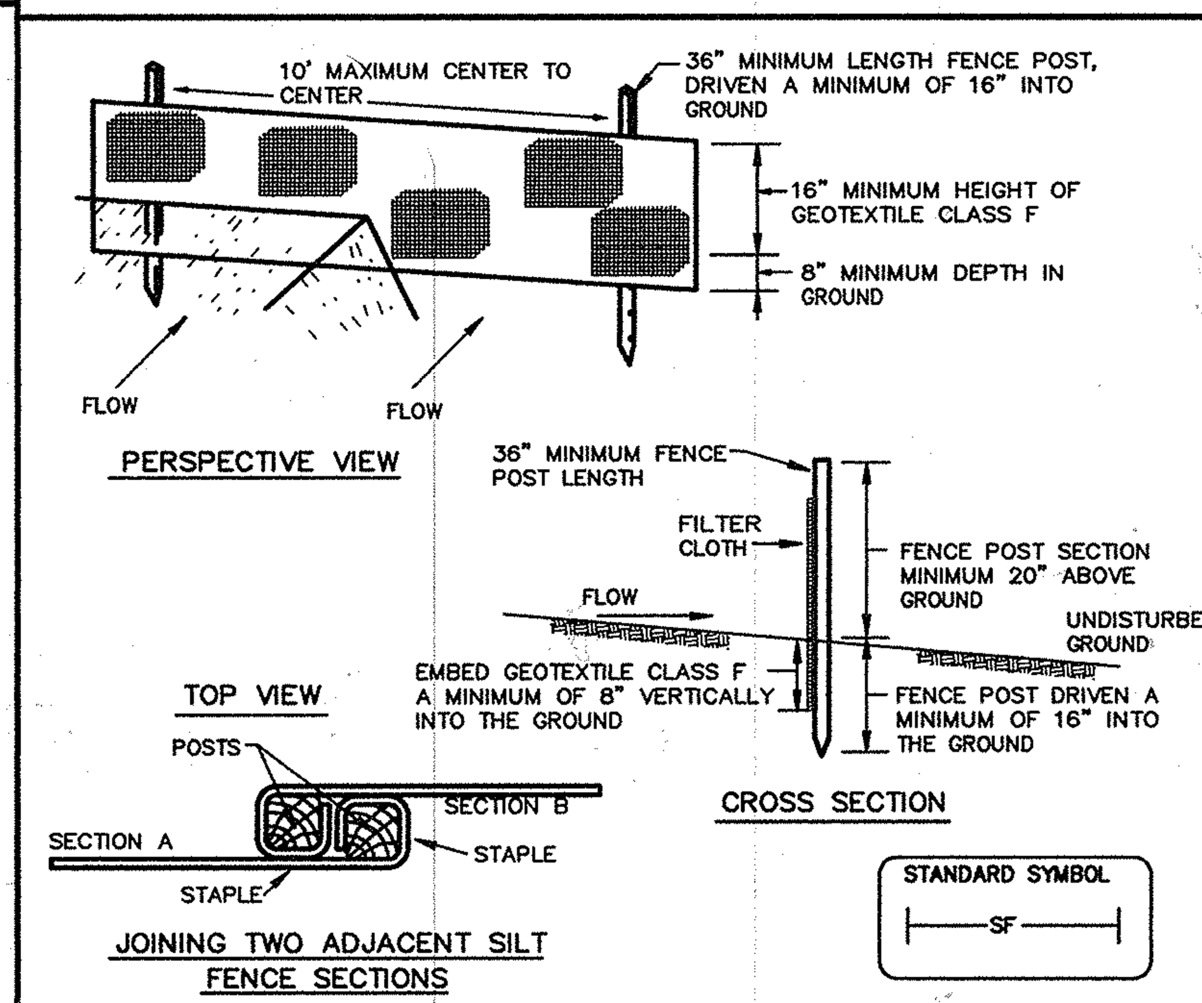
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

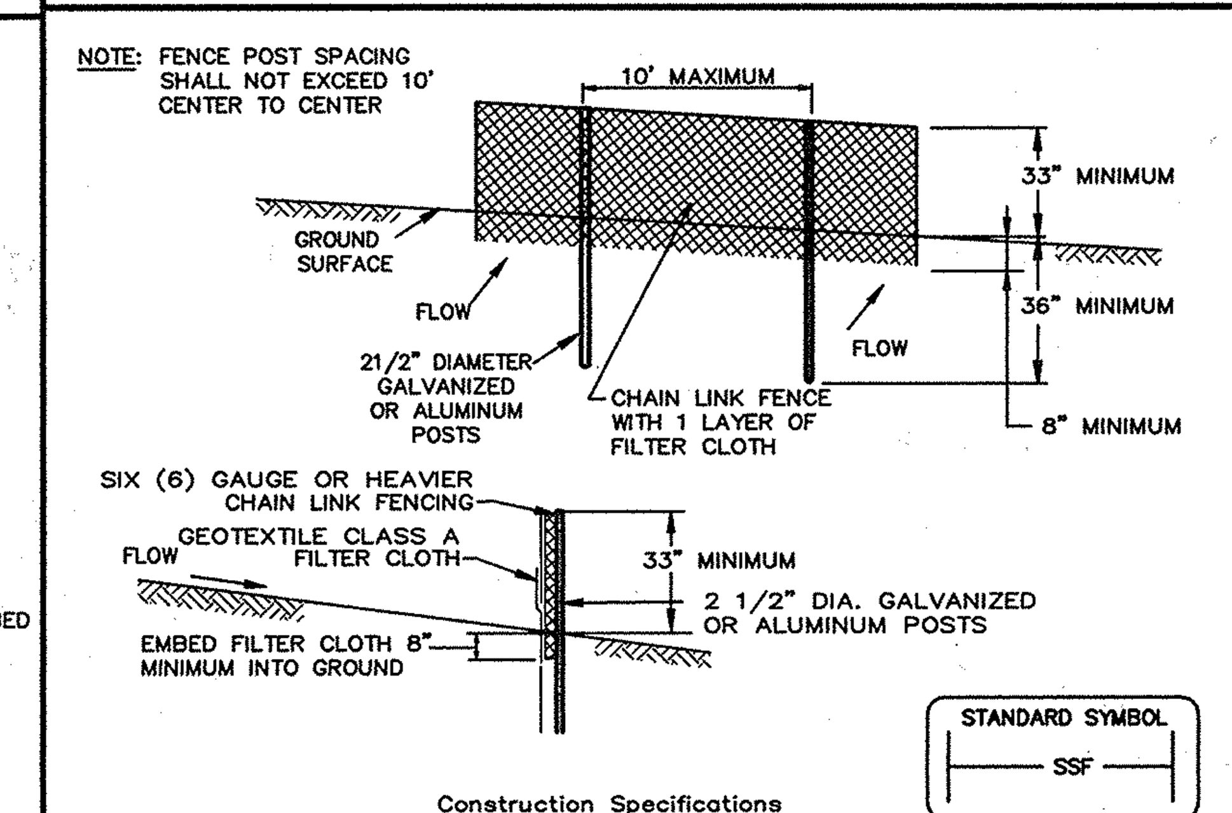
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The SHA specifications for a 6 foot fence shall be used, substituting 42" fabric and 6 foot length posts.

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.

4. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

5. Filter cloth shall be embedded a minimum of 8" into the ground.

6. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.

7. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 26 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLANS

1. No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.

2. Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.

3. Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.

4. Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.

5. Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year flood plain in excess of that lost under the originally authorized structure or fill.

6. Rectify any nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year flood plain temporarily impacted by any construction.

7. All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Uniola sp.), and/or Rye (Secale cereale). These species will allow for stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. Kentucky 31 fescue shall not be utilized in wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.

8. After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.

9. To protect aquatic species, in-stream work is prohibited as determined by classification of the stream:

   Use I waters: In-stream work shall not be conducted during the period of March 1 through June 15, inclusive, during any year.

10. Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.

11. Culverts shall be constructed and any riprap placed so as not to obstruct the movement of the aquatic species, unless the purpose of the activity is to impound water.

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A)7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G.). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

6. SITE ANALYSIS:

TOTAL AREA OF SITE	6.2 ACRES
AREA DISTURBED	2.8 ACRES
AREA TO BE ROOFED OR PAVED	0.1 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.7 ACRES
TOTAL CUT	45 CU. YARDS
TOTAL FILL	45 CU. YARDS
OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT	

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

8. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

9. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

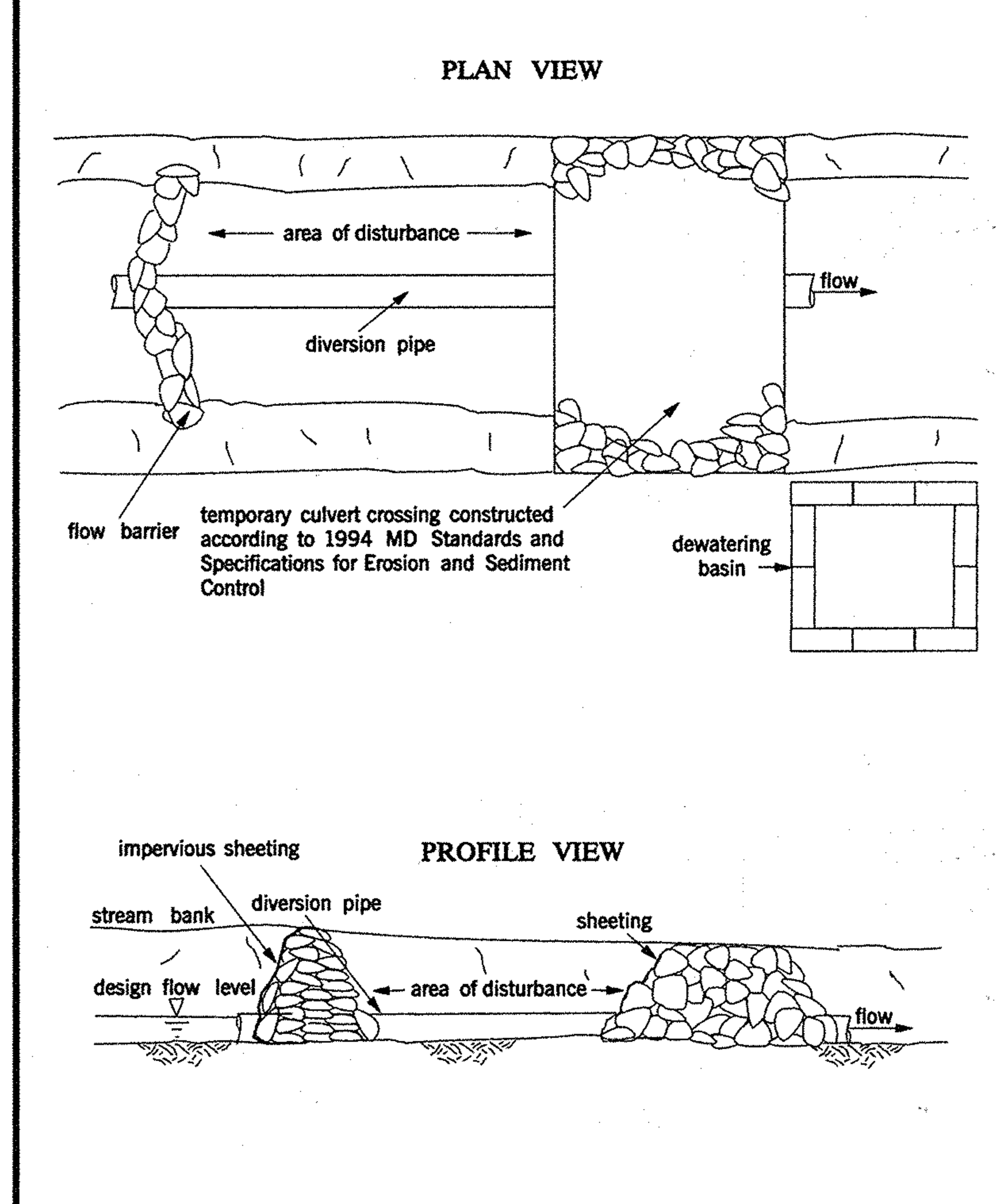
10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY.

11. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.

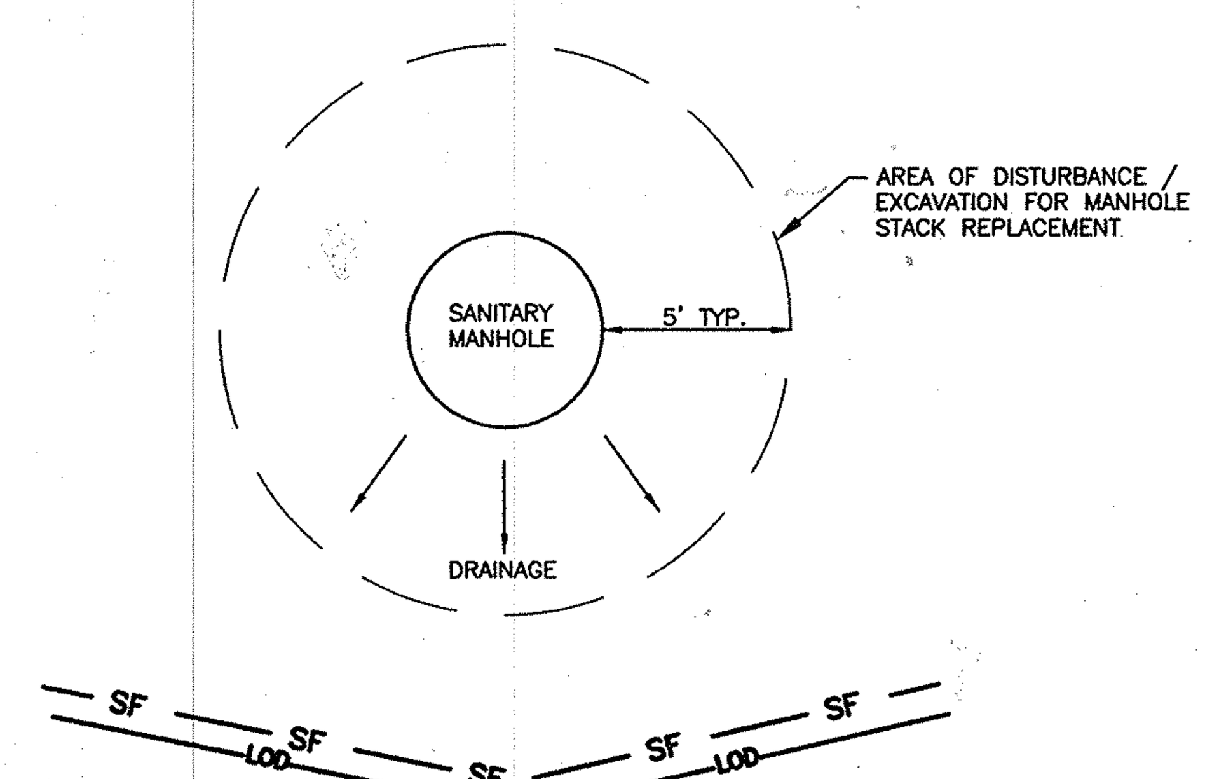
12. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.

13. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

Maryland's Guidelines To Waterway Construction
DETAIL 1.3: CULVERT PIPE W/ACCESS ROAD



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.3 – 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

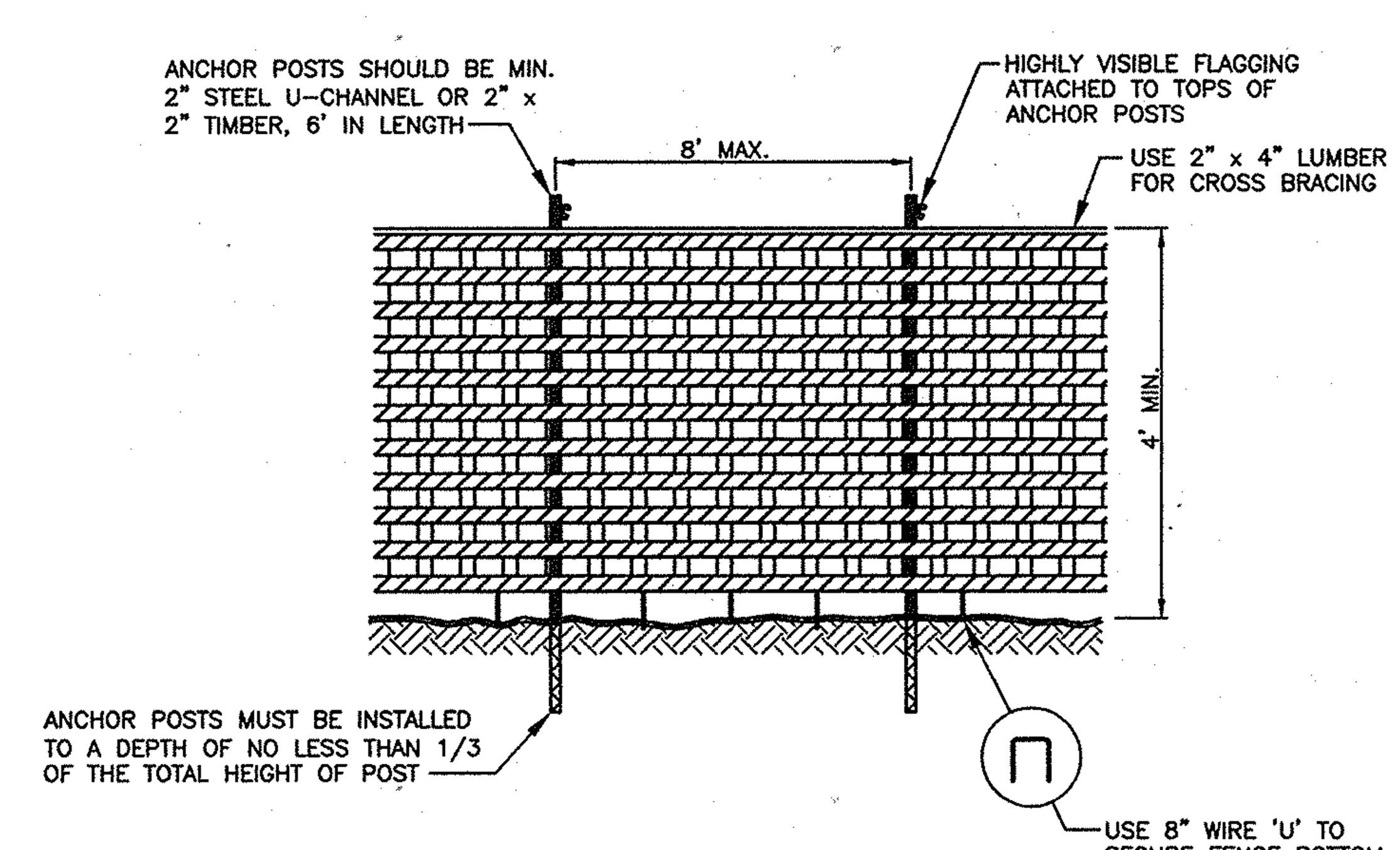


NOTES:

1. FOR MANHOLES REQUIRING EXCAVATION FOR STACK REPLACEMENT OR CIPP LINER INSTALLATION, SILT FENCE SHALL BE INSTALLED ON THE DOWNSTREAM SLOPE OF THE DISTURBED AREA.

TYPICAL DETAIL FOR EROSION & SEDIMENT CONTROL FOR MANHOLE WORK

NO SCALE



NOTES:

1. BLAZE ORANGE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. FENCE BOUNDARIES SHALL BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
3. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
4. DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCE

NO SCALE

PROJECT SEQUENCE OF CONSTRUCTION

1. Notify Miss Utility (1-800-257-7777) at least 48 hours prior to beginning work.
2. Notify Howard County Bureau of Engineering Construction Inspection Division (410-313-1855) at least 48 hours prior to beginning work on-site and obtain grading permit. (1 day)
3. Clear and grub for sediment and erosion control measures or devices only. (7 days)
4. Install all sediment and erosion control measures and devices including stabilized construction entrance(s). (10 days)
5. Notify Howard County Bureau of Engineering Construction Inspection Division upon completion of the installation work noted above. (1 day)
6. With the approval of the Howard County Bureau of Engineering Construction Inspection Division, clear and grub the remainder of the site and stabilize immediately. (21 days)
7. Begin excavation and installation of utilities. Work shall be limited that which can be backfilled and stabilized in one day per Standard Sediment Control Note No. 10. Stabilize work area at the end of each work day. (455 days)
8. Connect to existing utilities where applicable. (7 days)
9. With permission from the Sediment Control Inspector, remove stabilized construction entrance(s). (2 days)
10. Stabilize all disturbed areas. (14 days)
11. Following approval from the Howard County Bureau of Engineering Construction Inspection Division Inspector, remove all remaining sediment control measures and stabilize any remaining areas. (7 days)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — PROFESSIONAL ENGINEER [seal, signature]

DES: M.L.G.				
DRN: J.K.				
CHK: D.A.V.				
DATE: 02/21/13	BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL DETAILS

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

AS-BUILT: 2·29·2016

SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.

ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME, OR TRADEMARK, AND WARRANTEE OF THE PRODUCER.

iii. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98–100% WILL PASS THROUGH A #20 MESH SIEVE.

iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"–5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDBED PREPARATION

i. TEMPORARY SEEDING

a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3"–5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"–5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

ii. PERMANENT SEEDING

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.

1. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (ppm).
3. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.

b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"–5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

d. MIX SOIL AMENDMENTS INTO THE TOP 3"–5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"–3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

e. SEE TECHNICAL SPECIFICATIONS, SECTION 02260, FOR SPECIAL REQUIREMENTS.

D. SEED SPECIFICATIONS

i. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

ii. INOCULANT – THE INOCULANT FOR TREATING LEGUME SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING.

NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75'–80'F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

i. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.

a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATE AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 lbs. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 lbs. PER ACRE; K20 (POTASSIUM): 200 lbs. PER ACRE.

b. LIME – USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

c. SEED AND FERTILIZER SHALL BE MIXED ON-SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

ii. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

iii. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL

a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4" OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)

i. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEEDS SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

ii. WOOD CELLULOSE FIBER MULCH (WCFM)

a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INPECTION OF THE UNIFORMLY SPREAD SLURRY.

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

f. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10mm, DIAMETER APPROXIMATELY 1mm, pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS – MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

i. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

ii. WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS PER ACRE.

iii. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

i. A MULCH ANCHORING TOOL IS A TRACTOR-DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS – SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.

iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4'–15' WIDE AND 300'–3,000' LONG.

I. INCREMENTAL STABILIZATION – CUT SLOPES

i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.

ii. CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.

b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.

c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.

d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

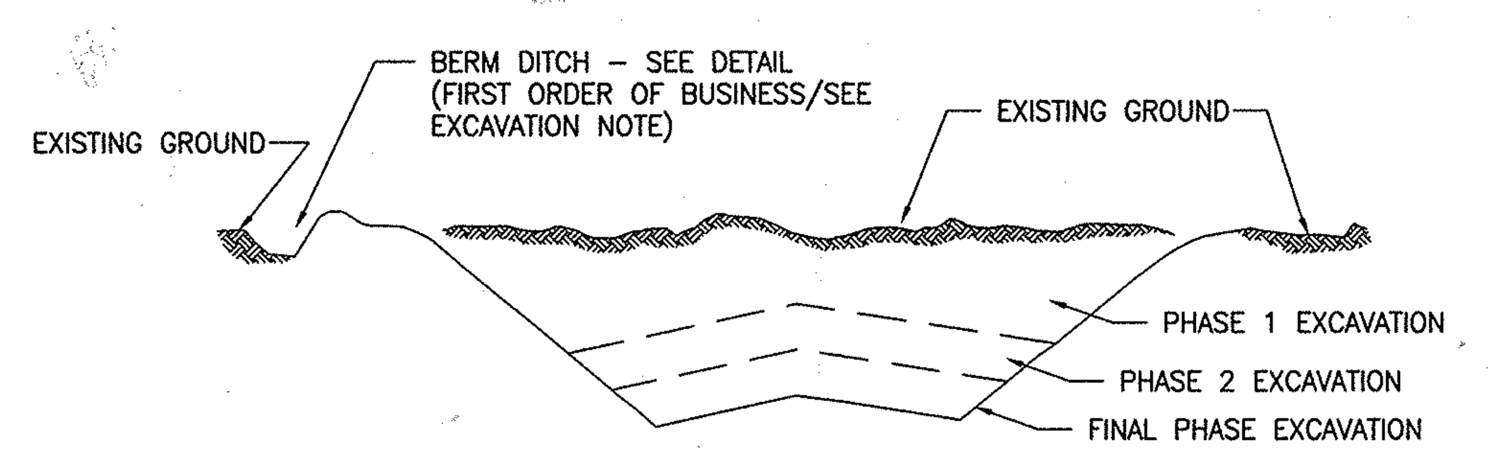

FIGURE 4: INCREMENTAL STABILIZATION – CUT

J. INCREMENTAL STABILIZATION OF EMBANKMENTS – FILL SLOPES

i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.

ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS

iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.

iv. CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).

a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.

b. PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.

c. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.

d. PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

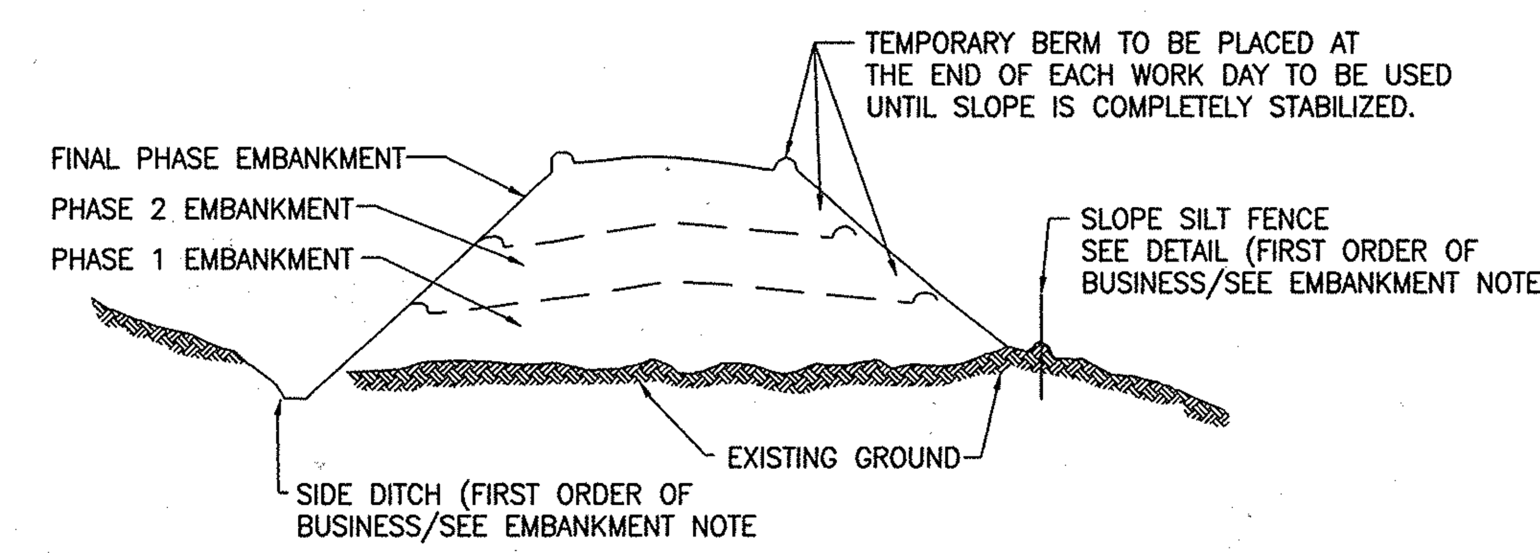

FIGURE 5: INCREMENTAL STABILIZATION – FILL

SECTION II – TEMPORARY SEEDING

VEGETATION – ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

A. SEED MIXTURES – TEMPORARY SEEDING

i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.

ii. FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 26					FERTILIZER RATE (10–10–10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
	ANNUAL RYE	50	3/1–4/30 8/15–11/1	1/4" – 1/2"	600 lb/ac (15 lb/1000sf)	2 tons/ac 100 lb/1000sf
	WEEPING LOVEGRASS	4	5/1–8/14	1/4" – 1/2"		

SECTION III – PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

A. SEED MIXTURES – PERMANENT SEEDING

i. THE SPECIES OR MIXTURES LISTED IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS SHALL BE USED ON THIS PROJECT.

ii. THIS SITE HAS A DISTURBED AREA OVER 5 ACRES. THEREFORE, THE RATES SHOWN ON THIS TABLE MAY BE MODIFIED BY THE SOIL TESTING AGENCY.

iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46–0–0) AT 3–1/2 lbs. PER 1000 sq. ft. (150 lbs/ac), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25					FERTILIZER RATE (10–20–20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	CREEPING RED FESCUE (30%) CHEWINGS FESCUE (30%) ROUGH BLUE GRASS (20%) CATALINA PERENNIAL RYEGRASS (20%)	200	3/1–5/15 AND 8/15–10/15	1"	90 lb/ac (2.0 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	175 lb/ac (4 lb/ 1000 sf)	2 tons/ac (100 lb/ 1000 sf)

SECTION IV – SOD

TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

A. GENERAL SPECIFICATIONS

i. CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

ii. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

iii. STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10% OF THE SECTION.

iv. SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

v. SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

i. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

ii. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

iii. WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

iv. SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

i. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.

ii. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN MOISTURE CONTENT.

iii. THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 8 OF 9

AS-BUILT: 2-29-2016

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WESTBOUND LANE

SCALE: 1" = 100'

NOTES:

1. THIS DRAWING SHALL BE USED IN COMBINATION WITH THE SHA GENERAL NOTES MD 104.00-01 – MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 – MD 104.01-62, MD 104.02-10 AND MD 104.06-14.
2. CONTRACTOR SHALL USE FLAGGER TO CONTROL TRAFFIC WHEN CONSTRUCTION VEHICLES ARE ENTERING AND EXITING THE CONSTRUCTION SITE.
3. WORK IN VOLLMERHAUSEN ROAD, INCLUDING LANE CLOSURES, IS LIMITED TO BETWEEN 9:00 AM AND 4:00 PM.
4. A MINIMUM 12 FEET WIDE TRAFFIC LANE SHALL BE MAINTAINED AT ALL TIMES.
5. CONTRACTOR SHALL PROVIDE ANY NEEDED ASSISTANCE FOR A PEDESTRIAN WHO NEEDS TO GET THROUGH THE CONSTRUCTION AREA.

SIGNAGE

DETAIL	NAME	REFERENCE
	FLAGGER	W20-7a
 ONE LANE ROAD 1500 FT	ONE LANE ROAD – 1500 FT	W20-4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	2/27/13	CHIEF, BUREAU OF ENGINEERING	2/25/13
CHIEF, BUREAU OF UTILITIES	2/22/13	CHIEF, UTILITY DESIGN DIVISION WD	2/25/13

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DES: M.L.G.
DRN: J.K.
CHK: D.A.V.
DATE: 02/21/13

BY	NO.	REVISION	DATE

VOLLMERHAUSEN ROAD
MAINTENANCE OF TRAFFIC PLAN

600 SCALE MAP NO. 42, 47 BLOCK NO. 4,8,10,15,16 & 22

LITTLE PATUXENT INTERCEPTOR
SEWER REHABILITATION
CAPITAL PROJECT NO. S-6273
CONTRACT NO. 20-4760
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 9 OF 9

AS-BUILT: 2-29-2016

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